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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 09/871,560  
Filing Date: May 31, 2001  
Appellant(s): ALROY, DANIEL

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Daniel Alroy  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed March 10, 2008 appealing from the Office action mailed January 17, 2007.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

There appears to be a typographical error in the Applicant's statement of the status of the claims. The statement should be that claim 6 is rejected and the rejection of claim 6 is on appeal.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The rejection of claim 6 under 35 U.S.C. §112, 1<sup>st</sup> paragraph as new matter and as not complying with the enablement requirement are presented for review on appeal.

**WITHDRAWN REJECTIONS**

The following grounds of rejection are not presented for review on appeal because they have been withdrawn by the examiner. The rejection of claim 6 under 35 U.S.C. §102 as being anticipated by Trivedi et al. (US Patent 4,862,359) has been

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withdrawn because the reference does not teach identifying among brain loci that manifested increased activation in response to a stimulus and those whose inactivation selectively eliminates the behavioral response to a external stimulus, without eliminating behavioral responses to the external stimuli that induce other elements of sensation within the same submodality.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

No evidence is relied upon by the examiner in the rejection of the claims under appeal.

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 6 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This a new matter rejection.

Step 1 of claim 6 recites "establishing correspondence between the submodality element of sensation and the external stimulus that normally elicits it, and then with a voluntary behavior response, thus establish correspondence between said stimulus and said response . . . ." Applicant has cited page 14, lines 19-26; page 15, lines 19-22; page 16, lines 19-25, page 17, lines 1-16; page 20, lines 7-26 and page 21, lines 1-15; page 34, lines 9-17; page 38, lines 1-28 and page 39, line 1; and page 42, lines 1-19 for support of this step. However, the cited pages in the specification do not disclose a step of establishing correspondence in the context of the claimed method. Rather, the cited pages appear to be discussing the state of the prior art. Pages 14-17 and 20 and 21 are found under the section titled "The Conceptual Framework", which suggest these pages discuss the background information. Pages 14-17 discuss different elementary states and the relationship between proteins and neurons. Pages 20, 21, and 34 discuss the correlation between responses and external stimulus, but do not describe a voluntary behavior response. Page 38 discusses identifying activated brain loci. Page 39 discusses training mice to exhibit a behavior response to external stimulus, but not "establishing correspondence between the submodality element of sensation and the external stimulus that normally elicits it." Page 42 does appear to discuss a process, but the process described is using imaging to identify brain loci that are activated in response to an external stimulus, not "establishing correspondence between the submodality element of sensation and the external stimulus that normally elicits it." Thus, none of the cited passages in the specification disclose the recited step 1.

Step 2 of claim 6 recites “detecting immediately following said external stimulus and corresponding behavioral response, brain loci that manifest transient increase activation.” Applicant has cited page 14, lines 13-23; page 15, lines 19-26; page 16, lines 5-18; page 17, lines 17-29 and page 18, lines 1-26; page 19, lines 1-29 and page 20, lines 1-6; page 21, lines 16-25; page 29, lines 7-26 and page 30, lines 1-15; page 34, lines 9-11; page 38, lines 1-11; and page 38, lines 17-24 for support of this step. However, the cited pages in the specification do not disclose a step of immediately detecting brain loci after step 1. Pages 14-21, 29 and 30 are found under the section titled “The Conceptual Framework” which suggests these pages discuss the background information. Pages 14-21 discuss different elementary mental states, the relationship between proteins, neurons and receptors, the role of the central nervous system and innate sensations, and that different brain loci correspond to different external stimulus. Pages 29 and 30 discuss how proteins could affect elementary mental states or sensations and different cell types. None of these citations describe an immediate detection of brain loci after performing step 1.

Step 3 of claim 6 recites “identifying among said brain loci that manifested activation in response to said stimulus, those whose inactivation selectively eliminates the behavioral response to the external stimulus, without eliminating behavioral responses to external stimuli that induce other elements of sensation within the same submodality.” Applicant has cited page 15, lines 7-12; page 23, lines 15-25; page 34, lines 12-17; page 38, lines 25-28 and page 39, lines 1-12; and page 42, lines 1-18 for support of this step. However, the cited pages in the specification do not disclose

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identifying brain loci that activated in response to an external stimulus whose inactivation would eliminate a behavior response to the external stimulus. Pages 15 and 23 are found under the section titled "The Conceptual Framework" which suggests these pages discuss the background information. Page 15 and 23 discuss how proteins correlate to an elementary mental state. Page 34 discusses correlating behavior responses with brain loci. Pages 38 and 39 discuss identifying activated brain loci, training mice to exhibit a behavior response to an external stimulus, and deactivating the brain loci with a neurotoxin, however, pages 38 and 39 do not describe where behavioral responses to external stimuli that induce other elements of sensation within the same submodality are not eliminated. Page 42 describes using imaging to identify brain loci that are activated in response to an external stimulus. None of these citations disclose step 3 of the instant claim.

Finally, the specification does not disclose the recited method in context with the other method steps. The cited passages do not disclose that step 2 is performed immediately after step 1 and step 3 is to be performed after step 2. For example, on page 38 of the specification, after mice are injected with radioactive labeled glucose, the mice are sacrificed and their brains subjected to autoradiography. However, there is no mention of establishing a correspondence between sensation and an external stimulus with a voluntary behavior response as required in step 1. There is no immediate detection of brain loci with increased transient activation as required in step 2, because the animals are sacrificed which would not allow immediate detection. Finally there is no identification of brain loci whose inactivation eliminates the behavior response to the

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external stimulus. On page 39, while mice are trained to exhibit a behavior response to a stimulus, there is no establishing of the correspondence between sensation and the external stimulus. There is no immediate detection of brain loci that manifest transient increased activation after the first step; instead it appears that the brain loci were previously determined. The final step does not teach where the behavioral responses to external stimuli that induce other elements of sensation within the same submodality are not eliminated. Thus the instant specification does not disclose the steps in context of the recited method.

Given that neither the originally filed specification nor the original claims disclose the individual method steps or the method steps in context with each other, the instant claim is drawn to subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention.

Claim 6 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Factors to be considered in determining whether a disclosure would require undue experimentation have been summarized in Ex parte Forman, 230 USPQ 546 (BPAI 1986) and reiterated by the Court of Appeals in In re Wands, 8 USPQ2d 1400 at



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1404 (CAFC 1988). The factors to be considered in determining whether undue experimentation is required include:

(1) the quantity of experimentation necessary - undue experimentation would be required because the brain is a complex organ where different species have different types of responses to external stimulus. Thus, it would require undue experimentation to determine the actual steps for identifying brain loci and deactivating brain loci to eliminate a particular behavior without eliminating other behavior responses to external stimuli.

(2) the amount of direction presented - The specification does not disclose the method steps or the method steps in context with each other.

(3) the presence or absence of working examples - On page 38 and 39, the specification does disclose work done on mice. However, as explained above, this example does not describe the method steps as claimed or in context with each other.

(4) the nature of the invention - The invention is drawn to a method of identifying brain loci of neural correlates of particular elementary mental states.

(5) the state of the prior art - The prior art has not revealed identifying brain loci that manifest increased activation in response to the stimulus and whose inactivation eliminates the behavior response to the external stimulus without eliminating the behavior response to the to external stimuli that induce other elements of sensation within the same submodality.

(6) the relative skill of those in the art - The relative skill of those in the art is high.

(7) the predictability or unpredictability of the art – Because the brain is a complex organ that is not fully understood, determining loci of the brain with particular characteristics is unpredictable.

(8) the breadth of the claims - The claim is drawn to method of identifying brain loci of neural correlates of a particular elementary mental state comprising the steps of establishing correspondence between the submodality element of sensation and the external stimulus that normally elicits it, and then with a voluntary behavior response, and immediately detecting brain loci that manifest transient increase activation following the external stimulus and behavioral response, and identifying brain loci that manifested increased activation in response to the stimulus and whose inactivation eliminates the behavior response to the external stimulus without eliminating the behavior response to the to external stimuli that induce other elements of sensation within the same submodality.

While it is well known in the art to identify if a subject is experiencing a sensation in response to a external stimulus as in step 1 (e.g., asking a subject what he is tasting after giving him food) and detecting brain loci that manifest transient increased activation as in step 2 (e.g., taking brain images), one of skill in the art would not know how to identifying brain loci that manifest increased activation in response to the stimulus and whose inactivation eliminates the behavior response to the external stimulus without eliminating the behavior response to the to external stimuli that induce other elements of sensation within the same submodality. The passage at page 39, lines 2-6, does disclose how to deactivate brain loci in mice. However, it does not

disclose how to identify that the deactivated brain loci eliminates the behavior response to the external stimulus without eliminating the behavior response to the external stimuli that induce other elements of sensation within the same submodality. The passage makes no mention of testing for behavior response to the external stimuli that induce other elements of sensation within the same submodality. Thus, one of skill in the art would be required to develop this test in order to practice the claimed invention.

Furthermore, the instant claim is not limited to mice. The brain is a complex organ where different species have different types of responses to external stimulus. For example, on page 37 of the specification, the Applicant discusses how there are several important differences between mice and humans. The specification does not teach how the tests for mice (i.e. deactivating brain loci without eliminating the behavior response to the external stimuli that induce other elements of sensation within the same submodality) are to be modified to apply those tests to other species. Thus, for one of skill in the art to perform the claimed method on other species, one of skill in the art would have to develop tests that are uniquely suited for the brain of other species. Such a requirement to develop these tests without any guidance from the specification would require undue experimentation.

The claims as written are an invitation to experiment and constitute undue experimentation based upon the unpredictability in this technical area and lack of guidance as to how the claimed method steps are to be performed.

#### **(10) Response to Argument**

**Response to arguments concerning the rejection of claim 6 rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement.**

Applicant argues that the Examiner misconstrued the specification. However, the Applicant has not stated how the Examiner misconstrued the specification, and it is unclear to the Examiner how he has misconstrued the specification.

Applicant also argues that under MPEP 707.07(j) that he asked the Examiner to formulate a claim. Under 707.07(j), the Examiner may expedite prosecution by helping to formulate a claim if it become apparent that the claims are allowable. However, it has not become apparent to the Examiner that the instant claim is allowable.

Given that neither the originally filed specification nor the original claims disclose the individual method steps or the method steps in context with each other, the examiner maintains that the instant claim is drawn to subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention.

**Response to arguments concerning the rejection of claim 6 rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement.**

In response to this argument, the Applicant has cited several passages to demonstrate that the instant claim is enabled by the specification. However, these

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passages do not teach how one of skill in the art is to identify brain loci that manifest increased activation in response to the stimulus and whose inactivation eliminates the behavior response to the external stimulus without eliminating the behavior response to the to external stimuli that induce other elements of sensation within the same submodality. The citation at page 16, lines 5-1; page 18, lines 13-26; page 19, lines 21-29, and page 20, lines 1-2 relates to identifying different loci of the brain that respond to external stimuli. The citation at page 36, lines 26-27, page 37, lines 1-6 relates to the possibility that proteins may affect different elementary mental states. The citation at page 39, lines 2-6 describes how to deactivate brain loci in mice. The passage at page 35, line 18-22 describes that some proteins are identified from human tissue and others are from mice. However, none of these passages disclose how one of skill in the art is to identify brain loci that manifest increased activation in response to the stimulus and whose inactivation eliminates the behavior response to the external stimulus without eliminating the behavior response to the to external stimuli that induce other elements of sensation within the same submodality. Thus the claims as written are not enabled for the reasons set forth in the ground of rejection.

The examiner maintains that the claims as written are an invitation to experiment and constitute undue experimentation based upon the unpredictability in this technical area and lack of guidance as to how the claimed method steps are to be performed.

#### **(11) Related Proceeding(s) Appendix**

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No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,  
/Jerry Lin/  
Examiner, Art Unit 1631  
5/21/08

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